



The ECOTOX Knowledgebase Pipeline: From literature search to data extraction



Maintain Quality
and Comprehensiveness



Improve Pipeline and
Enhance Utility

MED Project Team: Colleen Elonen, Dale Hoff, Jennifer Olker, and Carlie LaLone



ECOTOX Knowledgebase

- ECOTOX is a ***comprehensive, publicly available ECOTOXicology knowledgebase*** developed originally in the early 1980s and maintained by EPA ORD.
- ECOTOX provides access ***to environmental toxicity data on aquatic life, terrestrial plants and wildlife*** derived from publications identified after a comprehensive search of the open literature.
- ECOTOX literature is retrieved using a ***comprehensive strategy*** from electronic databases augmented with review bibliographies and summary articles; this process is evaluated and revised continually.
- ECOTOX is an ***internationally utilized comprehensive knowledgebase*** summarizing the toxicity of single chemicals to aquatic and terrestrial organisms.



What is the ECOTOX Knowledgebase???

- **30+ year history of supporting EPA (Originated in the early 80's): Currently average about 150,000 requests for data/month from about 7000 distinct hosts.**
- Includes **881,950 result records** from **46,754 publications** and 7 independently compiled data sets (e.g. EPA Pesticide database, USGS, OECD) covering **11,268 chemicals** and **12,395 terrestrial and aquatic specie**

Year	Unique Species	Unique Chemicals	Result Records
2007	1974	900	43524
2008	2528	1012	61080
2009	2764	1170	58434
2010	2043	1812	67832
2011	1361	1764	46972
2012	1681	1353	42052
2013	2222	1347	48933
2014	2043	1456	53153
2015	1919	1306	60477
2016	2221	1007	44351

*U.S. Environmental Protection Agency. 2017. ECOTOX User Guide: ECOTOXicology Database System. Version 4.0. Available: <http://www.epa.gov/ecotox/>, July 13, 2017.



State and Federal Regulatory Applications

CERCLA

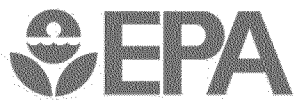
FIFRA

CWA

RCRA

FQPA

- Site-specific ecological risk assessments on hazardous waste sites
- Development of benchmarks
 - Ecological soil screening levels
 - Organism toxicity reference values
 - Surface water effect concentrations
 - Sediment effect concentrations
- Ambient Water Quality Criteria for Aquatic Life
- Pesticide Registration
- Data source for Endangered Species chemical assessments
- Emergency Response
 - Assessment of ecological effects
 - Prioritization of threat from chemicals



ECOTOX Pipeline

Develop
literature search

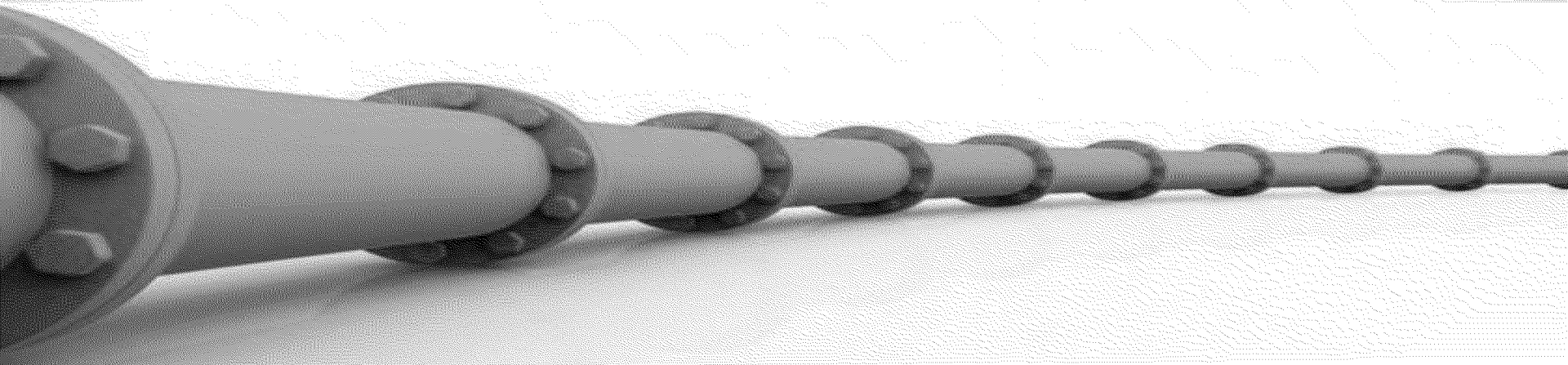
Conduct
searches

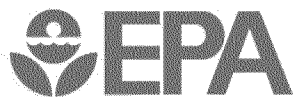
Identify
potentially
applicable
studies

Acquire
potentially
applicable
studies

Apply
ECOTOX
applicability
criteria

Code Data
into ECOTOX





ECOTOX Pipeline

ECOTOX Knowledgebase

[Home](#)[Search](#)[Explore](#)[Help](#)[Table of Contents](#)[ECOTOX and Related SOPs](#)

STARTING OUT

[Web Site Information](#)[Recent Additions](#)[Navigating this Web Site](#)[Frequent Questions](#)

HOW DO I...

[Learn Basics](#)[Select Search Parameters](#)[Select Report Format/Sort Order](#)[Navigate/View Reports](#)

WHAT IS...

[Data Field Definitions and Codes](#)[ECOTOX Coding Documentation](#)

MORE RESOURCES

[Glossary](#)[EPA Database/System Websites](#)[Related Websites](#)[ECOTOX and Related SOPs](#)

ECOTOX and Related SOPs

About ECOTOX Literature Searches

(PDF, 48 p. 1380 KB)

ECOTOX Literature and Paper Processing

(PDF, 66 p. 767 KB)

ECOTOX Citation Identification and Skim

(PDF, 59 p. 606 KB)

ECOTOX Chemical Verification and Entry

(PDF, 61 p. 392 KB)

EFED Coding Guidelines

(PDF, 39 p. 226 KB)

EFED Chemical Verification and Application of Criteria

(PDF, 83 p. 906 KB)

EFED Chemical Reports

(PDF, 47 p. 809 KB)

OPPT RAD Coding Guidelines

(PDF, 37 p. 230 KB)

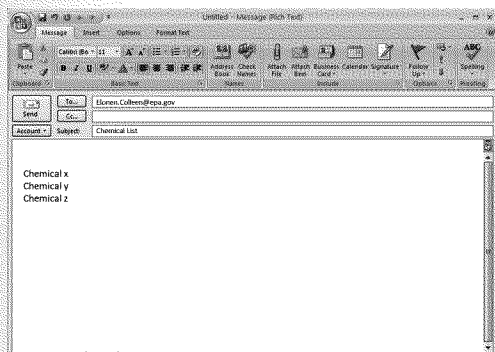
OPPT RAD Reports SOP

(PDF, 43 p. 526 KB)

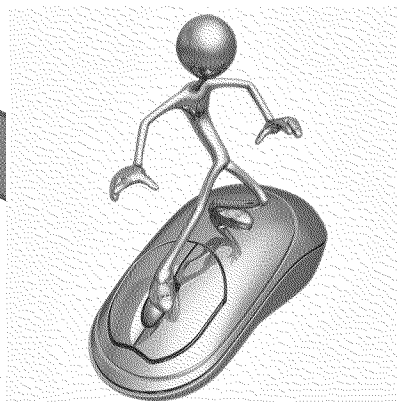


Identify, test, and QA search terms

Chemical list



Search various web sources for chemical terms,
Synonyms, verify CAS, eliminate poor search terms



Couple hour process



Enter chemical terms
into template for abstracting
databases

Develop
literature
search

Conduct
searches

Identify
potentially
applicable
studies

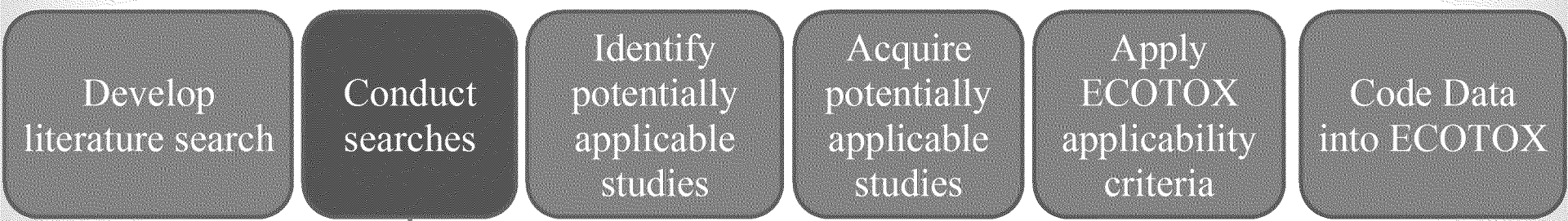
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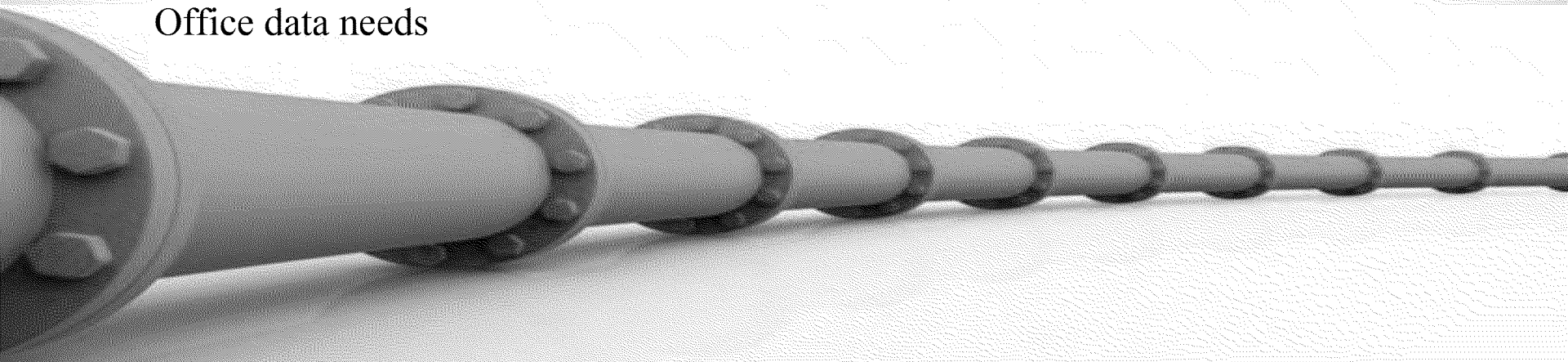
ECOTOX Pipeline

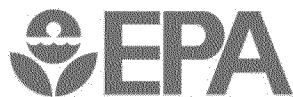


Chemical Specific Searches

- Dictated by ORD and Program Office data needs

Quarterly Electronic Searches



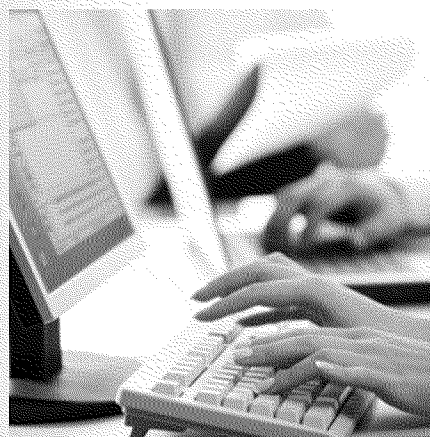


Chemical Specific Searches

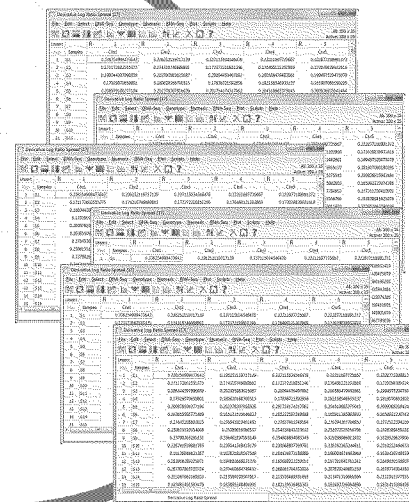
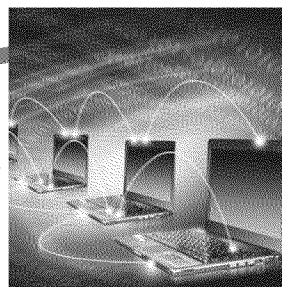
Enter search terms:

Tak(Acidid OR Albrass OR Bexton OR "CP 31393" OR "Kartex A" OR Muharicid OR Niticid OR Propachlor OR Propachlore OR Ramrod OR Satecid OR "US EPA PC Code 019101") AND NOT key(human* or child* or occupat* OR infant* OR homind* OR woman OR women OR patient* OR OSHA OR chromatograph* OR Spectrometr* OR pediatric*)

1. Science Direct
2. AGRICOLA
3. TOXNET
4. ProQuest CSA
5. Dissertation Abstracts
6. Web of Science
7. SciFinder
8. PubMed
9. ECOTOX holdings



Enter chemical terms
into template for search engine



January 2017-Present
References/Abstracts
~44,000

Year	Title	Author	Year	Title	Author
1995	Doing Christian theology with Jesus in Asia	Journal (simple)	1977		
1976	From Israel to Asia: A theological leap	Book Section	1977		
1963	Jesus Christ - The life of the world - An Asian meditation	Journal Article	1977		
1997	Christian theology: Towards an Asian reconstruction	Electronic Se	1977		
2006	Contextualisation and discipleship: Closing the gap between L...	Journal (simple)	1977		
2004	A brief history of Islam	Book (Simple)	1977		
1977	On photography	Book (Simple)	1977		
1987	New frontiers in isolation	Edited Book	1977		
1998	The crisis of global capitalism	Book (Simple)	1977		
1988	St Francis of Assisi and nature: Tradition and innovation in W...	Book (Simple)	1977		
1993	Cheap grace, costly grace, and just plain grace	Journal Article	1977		
1985	Metaphor and religious language	Book (Simple)	1977		
2000	Climate change: A challenge to the churches in South Africa	Book (Simple)	1977		
1998	Final report [of the TEC]	Electronic So...	1977		
1970	Western society and the church in the middle ages	Book (Simple)	1977		
2008	The granting of creation: God, evolution and the problem of evil. Req 1003	Book (Simple)	1977		
1999	God, humanity and the common: A textbook in science and religion. RF21.2	Book (Simple)	1977		
1977	Parents' secondary vision	Book (Simple)	1977		
1993	The New Age: The movement toward the divine	Book Section	1977		
2003	Adolescent brain development	Journal (simple)	1977		
1979	Australian popular culture	Book (Simple)	1977		
1990	Incarnational social ethics	Book Section	1977		
1987	The incarnation as the hermeneutical criterion for liberation a...	Journal (simple)	1977		
1998	God the stranger: An intercultural Hispanic American perspective R220	Book Section	1977		
1999	The global God: Multicultural evangelical views of God	Edited Book	1977		

Collate data and remove duplicates

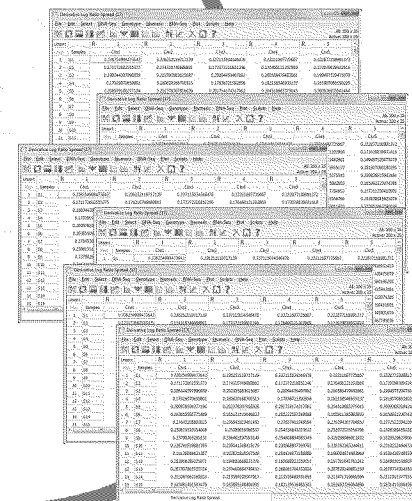
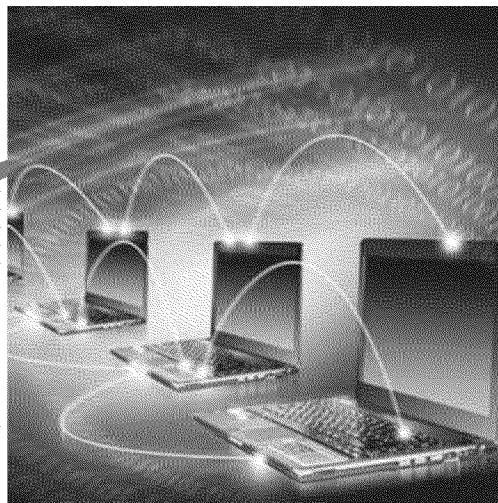
Collect output from
each database



Monthly Electronic Literature Searches

Eleven journals are queried

- Determined by historical applicability rates
- Applicability recommendations provided annually



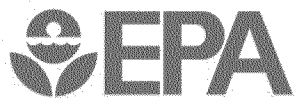
Collect output from each database

Author	Year	Title	Format	Incarn:	LibThe	Year
Song	1995	Doing Christian theology with Jesus in Asia	Journal (simple)	Incarn:	LibThe	1977
Song	1976	From Israel to Asia: A theological leap	Book Section	Incarn:	LibThe	
Song	1963	Jesus Christ - The life of the world - An Asian meditation	Journal Article	Incarn:	LibThe	
Song	1997	Christian theology: Towards an Asian reconstruction	Electronic Se			
Song	2006	Contextualisation and discipleship: Closing the gap between L...	Journal (simple)	Contextualis		
Sonn	2004	A brief history of Islam	Book (Simple)	Islam		
Sontag	1977	On photography	Book (Simple)			
Sookretse	1987	New frontiers in isolation	Edited Book			
Soren	1998	The crisis of global capitalism	Book (Simple)	Future		
Sorrell	1988	St Francis of Assisi and nature: Tradition and innovation in W...	Book (Simple)	Env		
Sorum	1993	Cheap grace, costly grace, and just plain grace	Journal Article	Incarn: Bonho		
Soskice	1985	Metaphor and religious language	Book (Simple)	Incarn: Chris		
South African...	2000	Climate change: A challenge to the churches in South Africa	Book (Simple)	Env		
Southern	1970	Final report [of the TRC]	Electronic So...	Reconciliation		
Southern	1970	Western society and the church in the middle ages	Book (Simple)	Evolution		
Southgate	2008	The granting of creation: God, evolution and the problem of evil	Req 1003 Book (Simple)			
Southgate	1999	God, humanity and the cosmos: A textbook in science and religion	RP20.3			
Spangler	1977	Towards a planetary vision	Book (Simple)	Planetary		
Spangler	1993	The New Age: The movement toward the divine	Book Section	New Age		
Spawo	2003	Adolescent brain development	Journal (simple)	Chaplaincy		
Speare	1979	Australian popular culture	Book (Simple)	Asia		
Speisell	1990	Incarnational social ethics	Book Section	Incarn: Other		
Speisell	1987	The incarnation as the hermeneutical criterion for liberation a...	Journal (simple)	Incarn: LibThe		
Spencer	1998	God the stranger: An intercultural Hispanic American perspective	RP20	Multicultural		
Spencer	1999	The global God: Multicultural evangelical views of God	221	Edited Book	Multicultural	

Collate data and remove duplicates

Preselected journals have been set to provide monthly Table of Contents Alerts

2016 Total References/Abstracts 8000



ECOTOX Pipeline

Develop
literature search

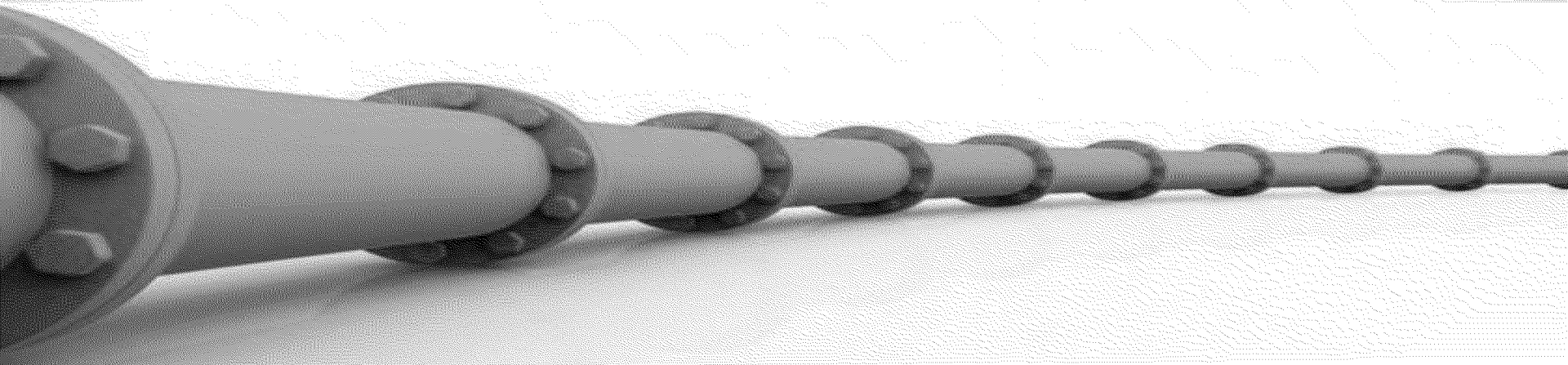
Conduct
searches

Identify
potentially
applicable
studies

Acquire
potentially
applicable
studies

Apply
ECOTOX
applicability
criteria

Code Data
into ECOTOX





Skimming to ID Applicability

Author	Title	Year	Journal	Incarn.
Song	1995 Doing Christian theology with Jesus in Asia	1995	Journal (Simple)	Incarn: LibThe
Song	1976 From Israel to Asia: A theological leap	1976	Book Section	Incarn: LibThe
Song	1983 Jesus Christ -- The life of the world -- An Asian meditation	1983	Journal Article	Incarn: LibThe
Song	1997 Christian theology: Towards an Asian reconstruction	1997	Electronic Se...	
Song	2008 Contextualization and discipleship: Closing the gap between L...	2008	Journal (Simple)	Contextualis...
Sorens	2004 A brief history of Islam	2004	Book (Simple)	Islam
Sontag	1977 On photography	1977	Book (Simple)	
Sookdeo	1987 New frontiers in mission	1987	Edited Book	
Sorens	1999 The crisis of global capitalism	1999	Book (Simple)	Future
Sorens	1988 St Francis of Assisi and return: Tradition and innovation in W...	1988	Book (Simple)	Env
Sorum	1993 Cheap grace, costly grace, and just plain grace	1993	Journal Article	Incarn: Benba
Soskice	1985 Metaphor and religious language	1985	Book (Simple)	Incarn: Christ
South African ...	2009 Climate change: A challenge to the churches in South Africa	2009	Book (Simple)	Env
South African T...	1996 Final report [of the TRC]	1996	Electronic Se...	Reconciliation
Southern	1970 Western society and the church in the middle ages	1970	Book (Simple)	
Southgate	2008 The greening of creation: God, evolution and the problem of evil	2008	Book (Simple)	Evolution
Southgate	1999 God, humanity and the cosmos: A textbook in science and religion	1999	Book (Simple)	Env
Spanier	1992 The New Age: The movement toward the divine	1992	Book Section	New Age
Spano	2003 Adolescent brain development	2003	Journal (Simple)	Chaplaincy
Spearritt	1979 Australian popular culture	1979	Book (Simple)	Aust
Speidel	1990 International social ethics	1990	Book Section	Incarn: Other
Speidel	1987 The incarnation as the hermeneutical criterion for liberation A...	1987	Journal (Simple)	Incarn: LibThe
Spencer	1998 God the stranger: An intercultural Hispanic American perspective	1998	Book Section	Multicultural
Spencer	1998 The global God: Multicultural evangelical views of God	1998	Edited Book	Multicultural

Skim titles and abstracts, use exclusion criteria to eliminate non-applicable

solution (0.56%) of permethrin were separately sprayed onto cotton or polyester, followed by successive washes of the fabric. The results showed that the fabrics treated with P-LNC are more resistant than other solutions in terms of retaining permethrin content. After twenty washes, the cotton treated with P-LNC, presented a concentration of 566 +/- 27 mg/kg of impregnated permethrin, while for the treatment with the substance hydroalcoholic solution and with the commercial product the concentrations values were of 340 +/- 7 mg/kg and 224 +/- 74 mg/kg, respectively, when the test was performed using polyester, this fiber was less adhesive than cotton, resulting in a final concentration of permethrin (after 20 washes) of 81 +/- 10 mg/kg for P-LNC suspension, 94 +/- 8 mg/kg for the substance hydroalcoholic solution and 22 +/- 3 mg/kg for the commercial product. After impregnating cotton with the formulations and submitting to a temperature of 200 degrees C, the P-LNC also demonstrated higher adherence compared to the other formulations (407 +/- 67 mg/kg for P-LNC, 236 +/- 72 mg/kg for the substance hydroalcoholic solution and 138 +/- 62 mg/kg for commercial product). These results showed that the repellent spray composed of P-LNC developed in this work is a promising and innovative product for the individual protection against insects, useful for impregnation onto cotton garments.

PMID: 27433580 [PubMed - in process]

4. J Econ Entomol. 2016 Jul 18. pii: tow146. [Epub ahead of print]

Sulfur Dust Bag: A Novel Technique for Ectoparasite control in poultry systems. Murillo AC(1), Mullens BA(2).

Author information:
(1)Department of Entomology, University of California, Riverside, CA 92521 (alock001@ucr.edu; bradley.mullens@ucr.edu) alock001@ucr.edu, (2)Department of Entomology, University of California, Riverside, CA 92521 (alock001@ucr.edu; bradley.mullens@ucr.edu).

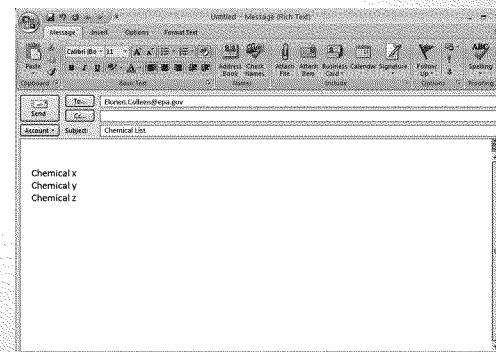
Animal welfare-driven legislation and consumer demand are changing how laying chickens are housed, thus creating challenges for ectoparasite control. hens housed in suspended wire cages (battery cages) are usually treated with high-pressure pesticides. This application type is difficult in enriched-cage or cage-free production, alternatives to pesticide sprays are needed in enriched-cage or cage-free systems. In this study, we tested the efficacy of sulfur dust deployed in "dust bags" for control against the northern fowl mite (Ornithonyssus sylviarum), which causes host stress, decreased egg production, and reduced feed conversion efficiency. Dust bags were hung from the tops of cages or were clipped to the inside front of cages. We also tested permethrin-impregnated plastic strips, marketed for ectoparasite control in caged or cage-free commercial and backyard flocks. Previous work has shown sulfur to be very active against poultry ectoparasites; however, we found that the placement of bags was important for mite control. Sulfur in hanging bags reduced sites on treatment birds by 95 or 97% (depending on trial) within one week of being deployed, and mite counts on these birds were zero after 2 wk. Clipped sulfur bags acted more slowly and did not significantly reduce mites in one trial, but reduced mite counts to zero after 4 wk in trial 2. Permethrin strips had no effect on mite populations. This may have been due to mite resistance, even though this mite population had not been exposed to pyrethroids for several years. Sulfur bags should be effective in caged or cage-free systems.

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DOI: 10.1093/ee/tow146

1. Based on Title/Abstract
2. Do not exclude if unsure
3. Must meet minimum criteria (single chemical exposure to non-human species)
4. Other exclusion criteria if possible (e.g., in vitro studies)

Send applicable reference list for acquisition



Primarily Manual Skimming



ECOTOX Pipeline

Develop
literature search

Conduct
searches

Identify
potentially
applicable
studies

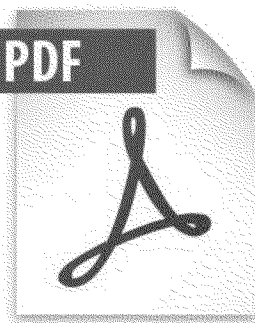
Acquire
potentially
applicable
studies

Apply
ECOTOX
applicability
criteria

Code Data
into ECOTOX

Ordered and Acquired
as electronic PDF

PDF





ECOTOX Pipeline

Develop
literature search

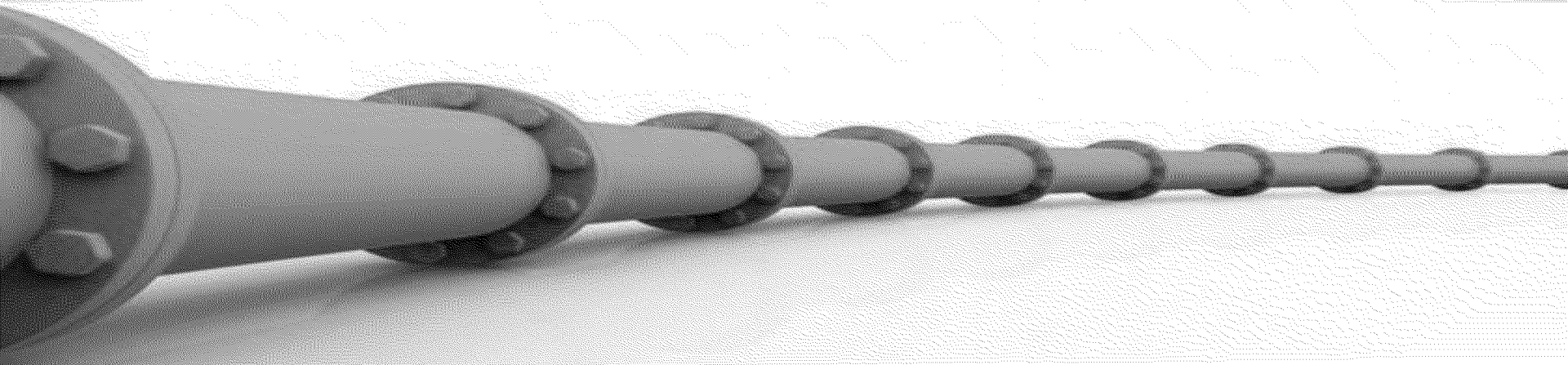
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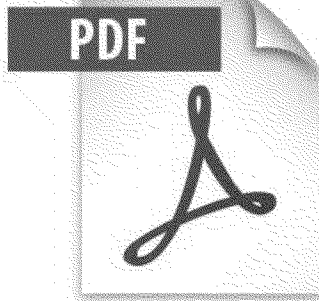




Skimming PDF for Applicability Criteria



Skim for Applicability
Primarily Manual



Ecotoxicology 2, 93-120 (1993)

The impact of the Cyanamid Canada Co. discharges to benthic invertebrates in the Welland River in Niagara Falls, Canada

MIKE DICKMAN and GRAZYNA RYGIEL

Biological Sciences Department, Brock University, St. Catharines, Ontario, Canada L2S 3A1

Received 15 July 1992; accepted 6 December 1992

In 1986, the International Joint Commission (IJC) recommended that the Niagara River watershed should be declared an Area of Concern (AOC). This IJC recommendation was ratified by the 4 signatories of the Great Lakes Water Quality Agreement. In order to fulfill an AOC, it is necessary to locate any areas of impairment within the watershed and carry out remediation projects that permit use that were previously impaired. To this end we attempted to determine whether or not the sediments at 7 study sites near the Cyanamid Canada (Chemical) Co. were contaminated at levels that would result in the impairment of the natural biota which inhabit the watershed.

The Cyanamid Canada (Chemical) Co. discharges ammonia, cyanide, arsenic and a variety of heavy metals into treatment systems which ultimately discharge to the Welland River, the major Canadian tributary to the Niagara River. This portion of the Welland River near the factory was designated a Provincially Significant (Class one) wetlands by the Ontario Ministry of Natural Resources. In 1986, the mean discharge to a creek from Cyanamid Canada Co. was 27,342 m³ per day (MOE, 1987). Similar discharge volumes occurred in 1989. In 1991, the total discharge was 25,000 m³ per day (MOE, 1991).

The majority of the benthic invertebrates collected from the study area were pollution tolerant taxa (e.g., sludge worms constituted 60% of all the organisms collected). The lowest chironomid densities were observed at stations 1, 2, and 4, which were the only stations situated close to Cyanamid's discharge pipes. The absence of clams and mussels which burrow to greater depths than do chironomids and sludge worms, probably reflects the inability of the deeper dwelling burrowers to tolerate the contaminants which we recorded at these 3 stations. The absence of all crustaceans from these same 3 stations (stations 1, 2 and 4) where coupled with their low biotic diversity and the elevated heavy metal concentrations in the sediments were cause for concern. In addition, station 2 and 4 displayed the highest frequency of chironomid minimum deformities.

Stations 1 and 2 were located near a pipe which was one of Cyanamid Canada Company's major discharge point sources to the Welland River until a court order in 1988 stopped the company from discharging toxic material to the Welland River via that pipe. Elevated levels of cobalt (10 times above background), methylmercury (6 times above background), nickel (9 times above background), tungsten (284 times above background) and zinc (20 times above background) near the abandoned discharge pipe were correlated with the presence of pollution tolerant chironomid taxa such as *Polypodium* and *Procladius*. The highest sludge worm densities were also observed at the abandoned pipe site which was the only site where only wastes were found in the sediments.

Among the 1,275 chironomids taken from the seven Cyanamid Canada stations, the great majority were pollution tolerant taxa. The low biotic diversity and the presence of considerable numbers of pollution tolerant benthic macroinvertebrates in combination with the chemical

0963-9295/93/090293-28\$04.00/0



Moves on to be curated
in ECOTOX
June 2016-June 2017
1,332 References

Applicability of Studies

- **Paper must meet these criteria**
 - **Single chemical exposure**
 - **Ecologically-relevant species**
 - **Must be able to verify CAS registry numbers**
 - **Must be able to verify taxonomic information for test species**
 - **Exposure to live organism, viable tissue or cells**
 - **Report concurrent exposure concentration, dose or application rate**
 - **Report duration of exposure**
 - **Primary source of the data**
 - **Study must be a full article in English**
- **The following studies are excluded**
 - **Air pollution studies related to CO₂ and ozone**
 - **Studies on humans, monkeys, bacteria, viruses and yeast**
 - **Review and summary articles**
 - **Terrestrial studies with an inhalation route of exposure**
 - **Non-English publications and abstracts**

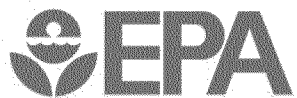




Applicability of Studies Continued

- All excluded studies are Tagged with the reason for rejection
 - Abstract – Published as an abstract
 - Bacteria – only test organisms are bacteria
 - CAS # Unavailable – could not verify/locate chemical CAS Registry number
 - Chemical method – description of chemical analysis procedures
 - Effluent – tests conducted with sewage or polluted runoff - mixtures
 - Fate – only report chemical distribution in media
 - Human Health – data on human subjects of surrogate animal subjects for human health risk assessment
 - Incident – reports death of animal by poison, but does not provide concentration/duration of exposure
 - Inhale – study is a terrestrial mammal paper with an inhalation route of exposure
 - Method – paper only reports methods for conducting a toxicity test or other aspect of an experiment
 - Mixture – paper reports results from mixture of chemicals; no single chemical exposure results
 - Modeling – results of the development of a model; no primary data available
 - Monkey – only test organism is a monkey
 - No Conc – the authors report a response in an organism but do not provide conc/dose/app rate
 - No Duration – duration of exposure is not presented
 - No Effect – paper does not report observed responses adverse of otherwise
 - No Species – used for dead organisms
 - No Toxicant (ozone, CO₂)
 - Non-English
 - Nutrient – in situ chemical tested as nutrient
 - PUBL AS – duplicate data published elsewhere
 - QSAR – modeled data
 - Retracted – paper retracted by Journal
 - Review – primary data published elsewhere
 - Sediment – only sediment conc presented
 - Survey – chemical measured in organism, but lack quantification of exposure (dose)
 - Virus – only test organism a virus
 - Yeast – only test organism is a yeast

JOB NO.	REJECTED	P.O. NO.
PART NO. _____	SERIAL NO. _____	
PART NAME _____		
NO. OF PIECES REJECTED _____		
REASON _____		
DISPOSITION _____		
INSPECTOR _____	DATE _____	



ECOTOX Pipeline

Develop
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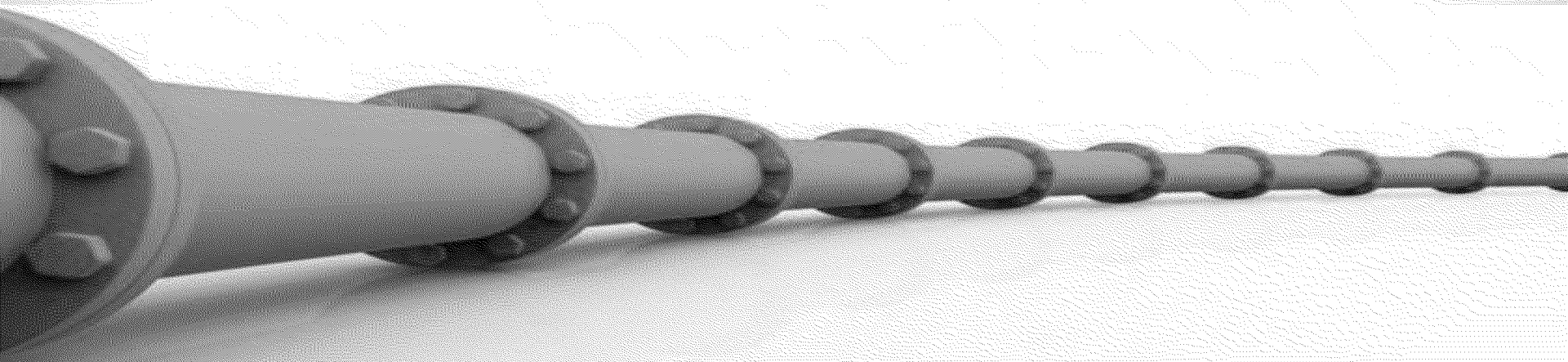
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ECOTOX
applicability
criteria

Code Data
into ECOTOX

<https://cfpub.epa.gov/ecotox/>





UNIFY - Production (UNIFY_PROD)



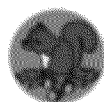
References

Manage Bibliographic Reference Information



Chemicals

Manage Chemical Information



Species

Manage Species Information



Toxicity

Code Toxicity Information



Administration

Manage Lookup Codes and Users

- Developed a software application called “Unify”
 - Increased efficiency in data curation
 - Increased consistency among technicians extracting the data
 - Provides for efficient Quality assurance



Data extraction and coding



Unify

- Home
- References
- Chemicals
- Search Chemicals
- Reports
- Help
- Species
- Toxicity
- Administration
- Logout

Edit Chemical Details



Record History

Created by: unspecified on 07/07/2000 at 12:00AM
Modified by: apomplun on 11/04/2013 at 12:09PM

STATUS: Verified RECORD TYPE: Active RECORD STATUS: Modified

Details 862 Reviewed Reference(s) Attached 1549 Unreviewed Reference(s) Attached 2411 Reference(s) Attached

CAS Number: Solvent ☐

C.I. Name: ☒ Ref 1: Ref 2: Marked for Delete: ☐

Chemical Name:

Tested SMILES:

Unique SMILES:

Tested SMILES Ref #: Page #:

Modeled SMILES:

Modeled SMILES Ref #: Page #:

Molecular Formula: ☐ Unspecified

Mole. Formula Ref #:

CHEMICAL STRUCTURE

TESTED SMILES



Unify

- Home
- References
- Chemicals
- Species
- Toxicity
- > Search Tests
- Administration

Search Toxicity

Collapse Pane

Test Number

Result Number

Clear

Search

Ecoref	Test Number	Result Number	CAS Number	Chemical Name	Latin Name	Habitat	Test Location	Control	Exposure Route	Media	Sample Number	Trend	Endpoint	Effect	Measurement (s)	Response Site(s)	Significance	Observed Duration
5412	1068766	6754	35367385	Diflubenzuron	Americamysis bahia	Water	LAB	C,V	F	SW	NR	INC	LC50	MOR	MORT	NR	NA	21 d

Page 1 of 1 pages (1 total records)

- Questions ??
- If time allows, the next few slides touch on the new version of ECOTOX



Introducing the Next Generation of the ECOTOX Knowledgebase

Maintain Quality
and Comprehensiveness



Improve and
Enhance Utility





New Look and Feel

ECOTOX Knowledgebase

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Data last updated

June 15, 2017

[See update totals](#)

Recent chemicals with full searches and coding completed

Abamectin

Asbestos

Atrazine

1-Bromopropane

Bromoxynil

Carbon tetrachloride

Chloropicrin

Cyclic Aliphatic Bromides

Dazomet

1,4-Dioxane

Dithiopyr

Methylene chloride

N-Methylpyrrolidone

Pymetrozine

Pyriithiobac

Tetrachloroethylene

Trichloroethylene

Total in database

11,268 Chemicals

46,754 References

12,395 Species

881,950 Results¹

ECOTOX IS IN BETA!

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About ECOTOX

The ECOTOXicology knowledgebase (ECOTOX) is a comprehensive, publicly available knowledgebase providing single chemical environmental toxicity data on aquatic life, terrestrial plants and wildlife.



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Getting Started

If you know the exact search term(s) you are looking for, you can head straight to the [Search](#) page. However, if you'd like to explore the ECOTOX system and its available search parameters, use the [Explore](#) page. Utilize the [Help](#) page for more information and how to's.

NEW Data Visualizations!



Using the ECOTOX Knowledgebase EXPLORE feature allows you to browse data within ECOTOX and use the data plotting option to view your results. You can interact with the data plots by hovering over specific data points or scrolling to zoom in on specific sections of data.



Search ECOTOX BETA version

Similar Search Features to Original



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Parameters

NEW

AQUATIC

TERRESTRIAL

NEW

NEW

CHEMICALS

+

- Dexamethasone

EFFECTS

+

Measurements

- Avoidance
- Behavior
- Biochemical
- Cellular
- Developmental

12 more...

ALL ENDPOINTS

+

SPECIES

+

Groups

- Fish

TEST CONDITIONS

+

Exposure Media

- Water - Fresh Water

ALL PUBLICATION OPTIONS

+

23 references

type to find...

#19883

Muto,N., H.W. Ren, G.S. Hwang, S. Tominaga, N. Itoh, and K. Tanaka. *Induction of Two Major Isoforms of Metallothionein in Crucian Carp (Carassius cuvieri) by Air-Pumping Stress, Dexamethasone, and Metals.* Comp. Biochem. Physiol. C Comp. Pharmacol. Toxicol.122(1): 75-82, 1999.

#67741

Leatherland,J.F. *Thyroid Response to Ovine Thyrotropin Challenge in Cortisol- and Dexamethasone-Treated Rainbow Trout, Salmo gairdneri.* Comp. Biochem. Physiol. A Comp. Physiol.86(2): 383-387, 1987.

#67748

Ilan,Z., and Z. Yaron. *Interference of o,p' DDD with Interrenal Function and Cortisol Metabolism in Sarotherodon aureus (Steindachner).* J. Fish Biol.22(6): 657-669, 1983.

#111406

Hillegass,J.M., C.M. Villano, K.R. Cooper, and L.A. White. *Glucocorticoids Alter Craniofacial Development and Increase Expression and Activity of Matrix Metalloproteinases in Developing Zebrafish (Danio rerio).* Toxicol. Sci.102(2): 413-424, 2008.



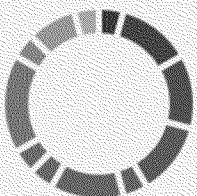
Explore ECOTOX BETA

ECOTOX Knowledgebase

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Group Filters

Select one or more  categories from the graph to filter groups in the table.



- 1 Accumulation Group
- 3 Behavior Group
- 3 Biochemical Group
- 3 Cellular Group
- 1 Ecosystem Group
- 3 Growth Group
- 1 Mortality Group
- 1 No Effect Group Coded
- 4 Physiology Group
- 1 Population Group
- 2 Reproduction Group
- 1 Not Reported

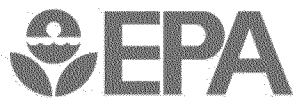
24 Effect Groups

Select one or more groups then click "Explore Data" to continue.

[← RESET ALL](#)[EXPORT CSV](#)[EXPLORE DATA](#)

▼	EFFECT GROUP	^	RECORDS	PUBLICATIONS	YEAR MIN	YEAR MAX
<input type="checkbox"/>	Accumulation		42835	6724	1915	2015
<input type="checkbox"/>	Avian/reptilian egg		880	210	1964	2015
<input type="checkbox"/>	Avoidance		3823	510	1947	2016
<input type="checkbox"/>	Behavior		14690	2232	1946	2016
<input type="checkbox"/>	Biochemistry		59712	8685	1931	2017
<input type="checkbox"/>	Cell(s)		9623	2009	1935	2016
<input type="checkbox"/>	Development		26424	3275	1925	2016
<input type="checkbox"/>	Ecosystem process		641	156	1963	2014
<input type="checkbox"/>	Enzyme(s)		35602	5525	1931	2016
<input type="checkbox"/>	Feeding behavior		8277	2048	1937	2016
<input type="checkbox"/>	Genetics		26363	2525	1938	2017
<input type="checkbox"/>	Growth		74829	10665	1925	2016
<input type="checkbox"/>	Histology		6700	2228	1937	2016
<input type="checkbox"/>	Hormone(s)		7937	1385	1938	2016
<input type="checkbox"/>	Immunological		2741	588	1948	2016
<input type="checkbox"/>	Injury		14707	1707	1931	2015
<input type="checkbox"/>	Intoxication		15487	939	1944	2016

ED_001644_00000006-00025



Explore with Data Visualization

ECOTOX Knowledgebase

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< Explore

Effects

Reproduction



Additional Filters

Select one or more or more of each filter to reduce the records.

Chemical Group (1)

Conazoles

Chemicals (26)

All

Species Group (9)

All

Species (86)

All

Effect Measurements (26)

All

Endpoints (8)

All

Publication Years

2000-2020

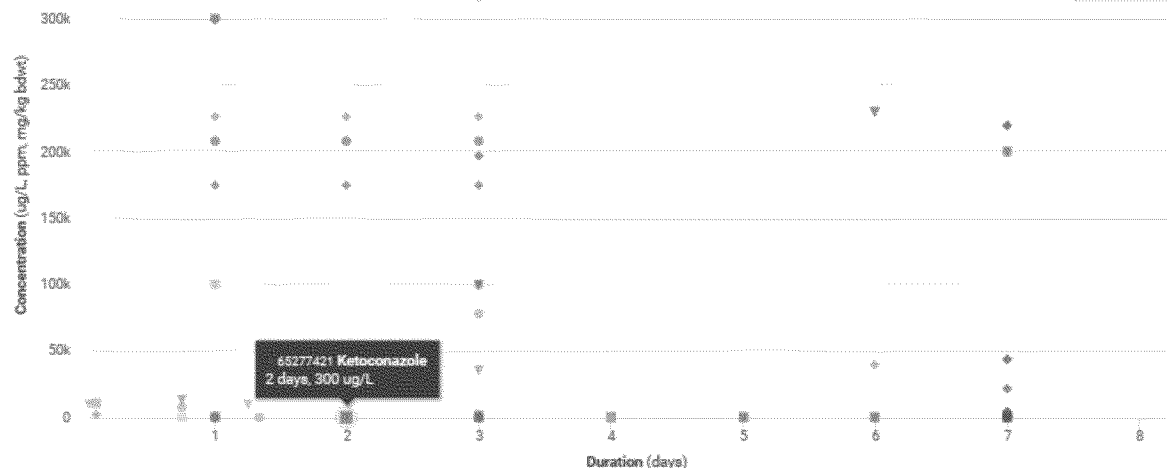
DUR = CHEM

DUR = ENDPT

EFFECT = CHEM

Click and drag to zoom in. Hold down shift key to pan.

EXPORT CHART



RESET ZOOM

131983727 Triticonazole
119446683 Difenoconazole
799837114 Hexaconazole
125225287 Iproconazole
67747095 Prochloraz
107534963 Tebuconazole
88671890 Myclobutanil
133855988 Epoxiconazole
94361065 Cyproconazole
112281773 Tetraconazole
116255482 Bromuconazole
114369436 Fenbuconazole
65277421 Ketoconazole
76674210 Flutriafol
43121433 Triadimefon
55219653 Triadimenol
68694111 Triflumizole
60207901 Propiconazole
35554440 Imazalil
85509199 Flusilazole
66246886 Penconazole
178928706 Prothioconazole
60207934 Etaconazole

Data Detail - 347 records of 347

RESET TABLE

EXPORT CSV

CAS NO.	CHEMICA...	SPECIES ...	COMMO...	EFFECT	MEASURE...	ENDPOINT	DUR (STD)	CONC. T...	CONC. M...	CONC. U...	PUB. YEAR
type to filter ...	...	...	...	...	...	...	...	...	...	...	...
131983727	Triticonazole	Americamysis	Opossum	Reproduction	Hatch	LOEC	28	Active	0.085	ug/L	199

ED_001644_00000006-00026



The ECOTOX/CompTox Chemistry Dashboard Connection

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Chemistry Dashboard

[Aa ▾](#)[Aa](#)[Aa ▴](#)

Chemistry Dashboard

Search a chemical by systematic name, synonym, CAS number, or InChIKey



☐ Single component search ☐ Ignore isotopes

See what people are saying, read the dashboard comments!

Need more? Use advanced search.

747 Thousand Chemicals